

MI DEQ & RETAP Pollution Prevention (P2) Training

P2 for Printing Processes

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Planning Exercise: Activities, Products & Services

☐ **DO NOT** LOOK @ Upcoming SLIDES!

☐ Turn to page 54 in the *GUIDE* & use these
Process Maps (Levels 1 & 2 only) to determine
printing process:

☐ Activities

☐ Products

☐ Services

Activities (Subactivities)

Products

Services

■ Prepress

- ➔ Art/Copy Assembly**
- ➔ Graphic Arts Processing**
- ➔ Platemaking**

■ Press

- ➔ Press Make-Ready**
- ➔ Printing**

■ Postpress

- ➔ Cutting/Folding**
- ➔ Binding/Finishing**

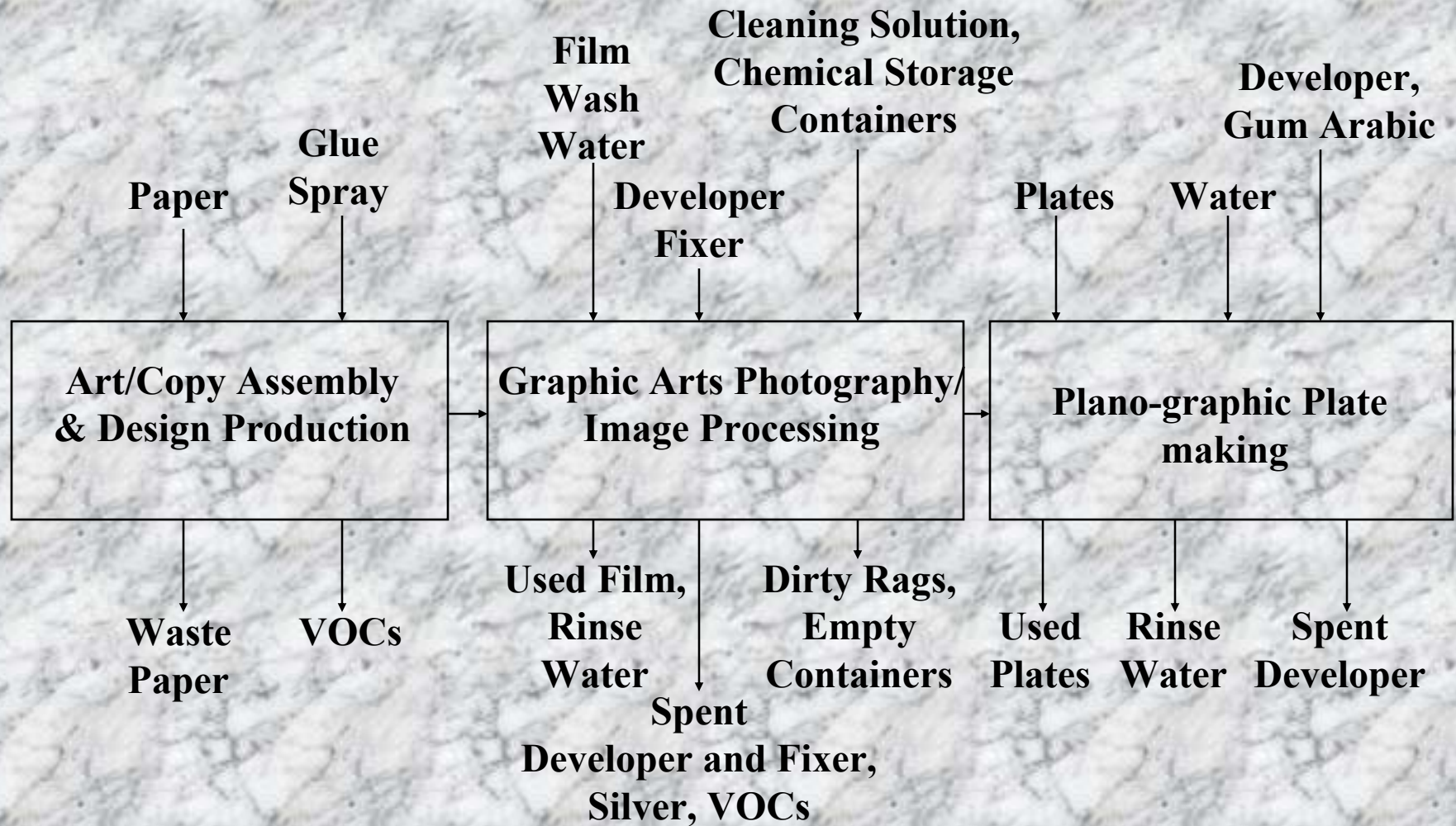
■ Printed Materials

- ➔ Brochures**
- ➔ Catalogs**
- ➔ Art Prints**
- ➔ Etc.**

■ Receiving

- Shipping**
- Maintenance**
- Admin.**
- ➔ Purchasing**
- ➔ EHS**
- ➔ Managers**
- Laboratory**

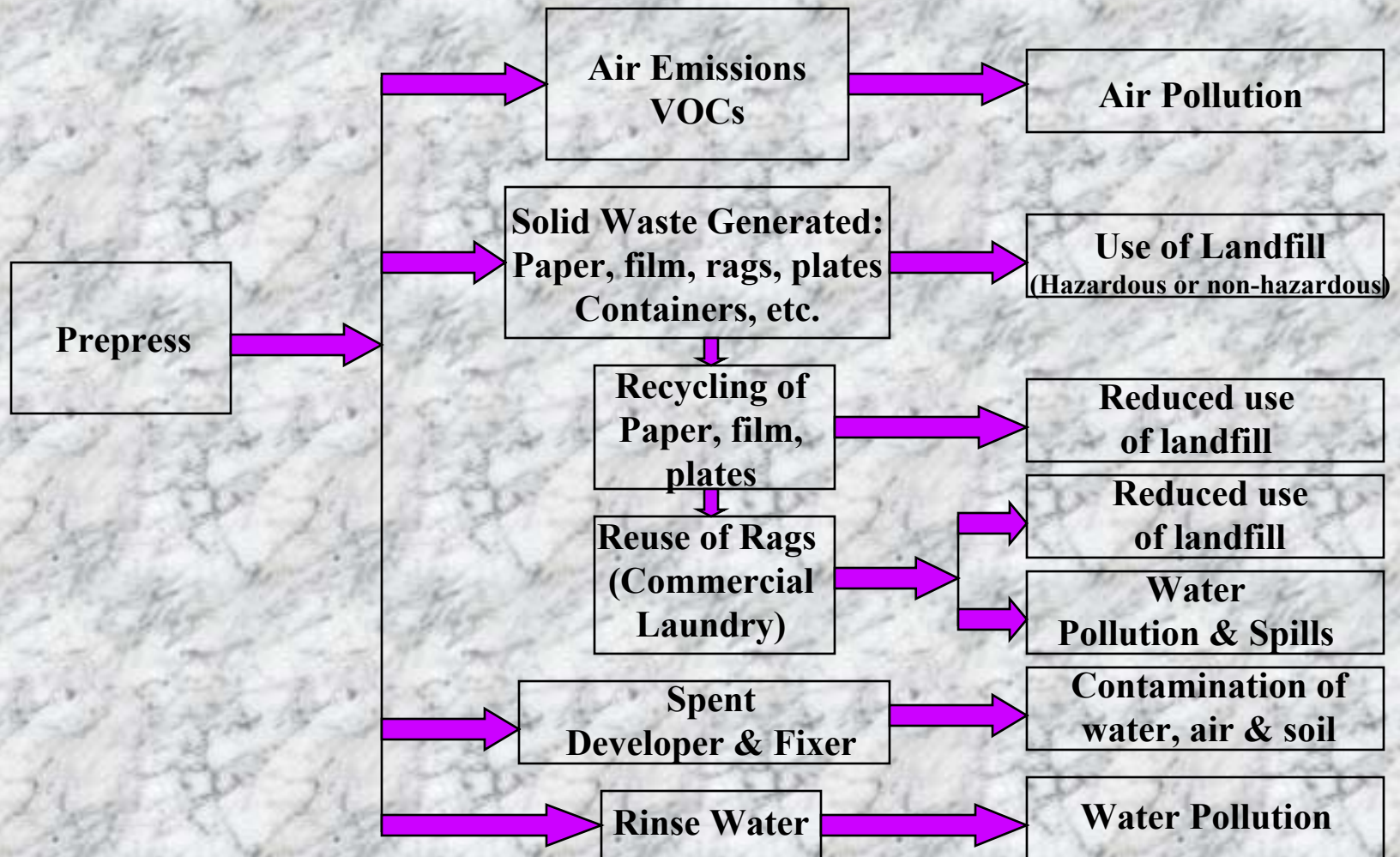
Input/Output Map for Prepress Processes



Activity

Aspect

Impact



Improve Overall Controls

- ☐ **Environmentally Preferable Purchasing (EPP)**
 - ☐ **Raw materials review & purchasing program (SW)**
- ☐ **Inventory control: First In, First Out**
- ☐ **Practice Waste Separation**
- ☐ **Employee Training**
- ☐ **Inspect waste storage containers for leaks**

Pre-Press Processes

☐ Photo-processing

☐ Developing

- ✓ Cover developer and fixative containers
- ✓ Minimize dragout – rollers, squeegees
- ✓ Recycle spent developer and fixer

☐ Water rinses

- ✓ Optimize bath temperature to 80 F
- ✓ Water conservation by intermittent water control
- ✓ Silver recovery from waste water

☐ Reduce Solid Waste – improperly exposed film, packaging, containers, customer rework

- ✓ Segregate and recycle

☐ Latest Trend --Increased digital work now –

Pre-Press Processes Cont.

☐ Plate Production

☐ Chemical etching of plate (high quality, \$\$\$)

- ✓ Nitric acid etching chemical**
- ✓ Proper handling, minimization**
- ✓ Hazardous waste handling**

☐ Optical etching of plates (typical)

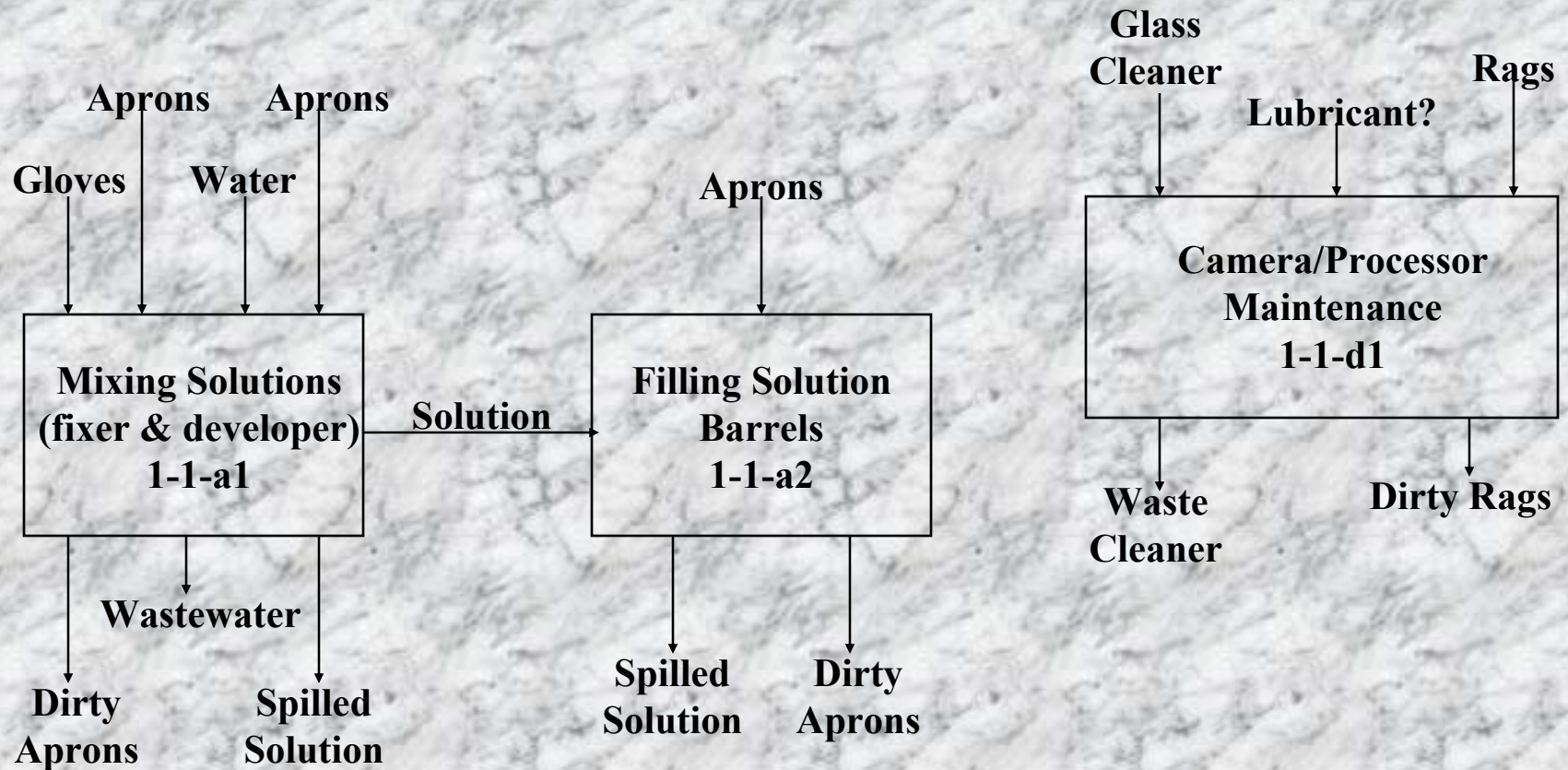
- ✓ Developer – see previous controls**
- ✓ Water – see previous controls**

☐ Solid Waste

- ✓ Recycle aluminum plates**

Intermittent/Ancillary Processes

Graphic Arts Photography



Intermittent/Ancillary Processes

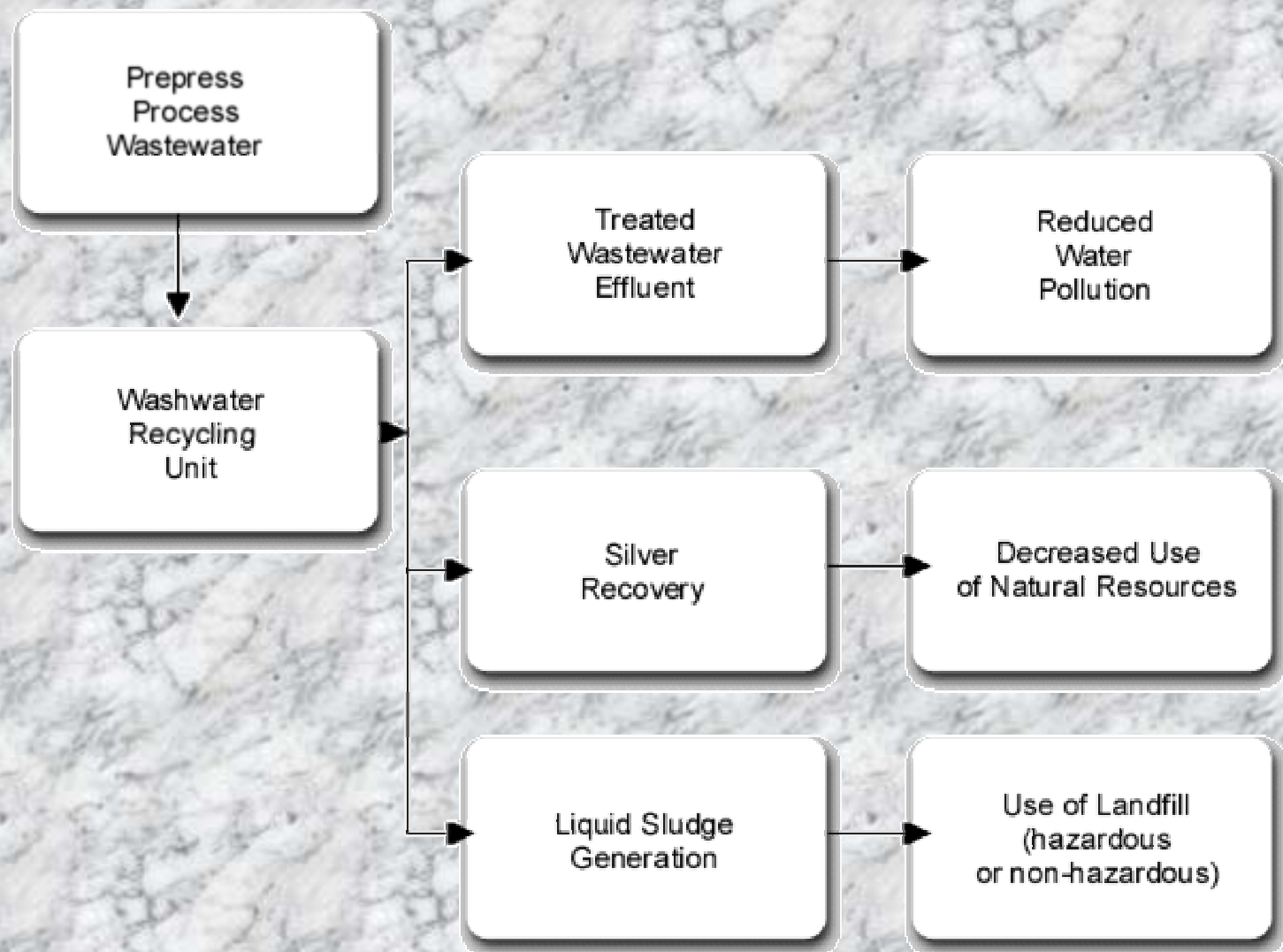
Graphic Arts Photography



Activity

Aspect

Impact



Pre-Press Processes

☐ Press Preparation

- ☐ Inspect rolls, machinery for defects**

- ☐ Test Proof**

 - ✓ Reduce solid waste by proofing before running production.**

- ☐ Optimize press production planning**

 - ✓ Minimize solvent use for changes and clean-up.**

Printing Processes

- ❑ Press Make-ready

- ❑ Printing

- ❑ Solid Waste

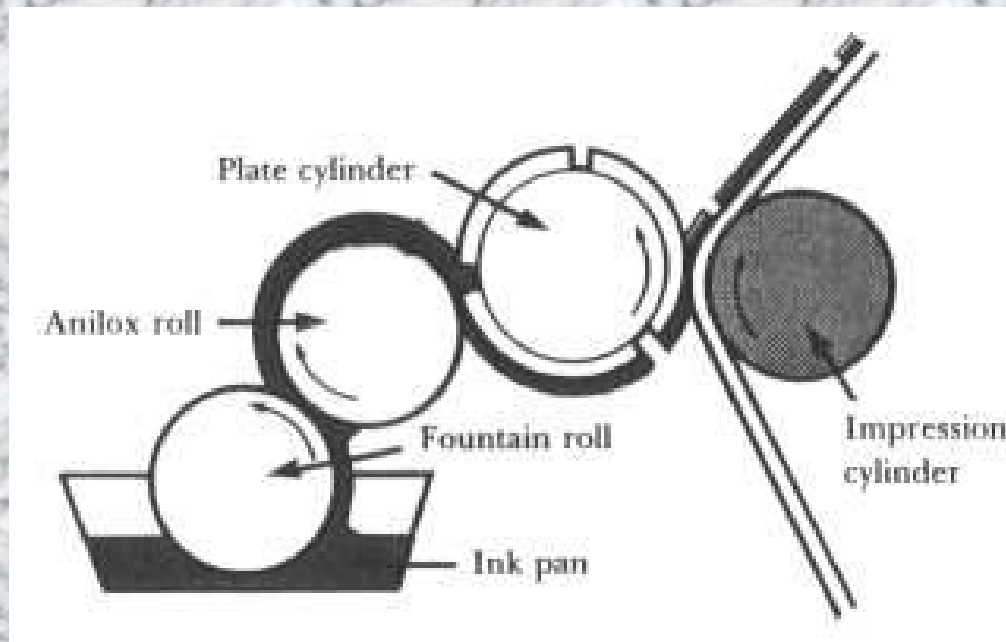
 - ✓ Set up press carefully
w/ test runs

- ❑ Inks

 - ✓ Selection of inks w/ low
metals, VOC content.

 - ✓ Keep containers closed

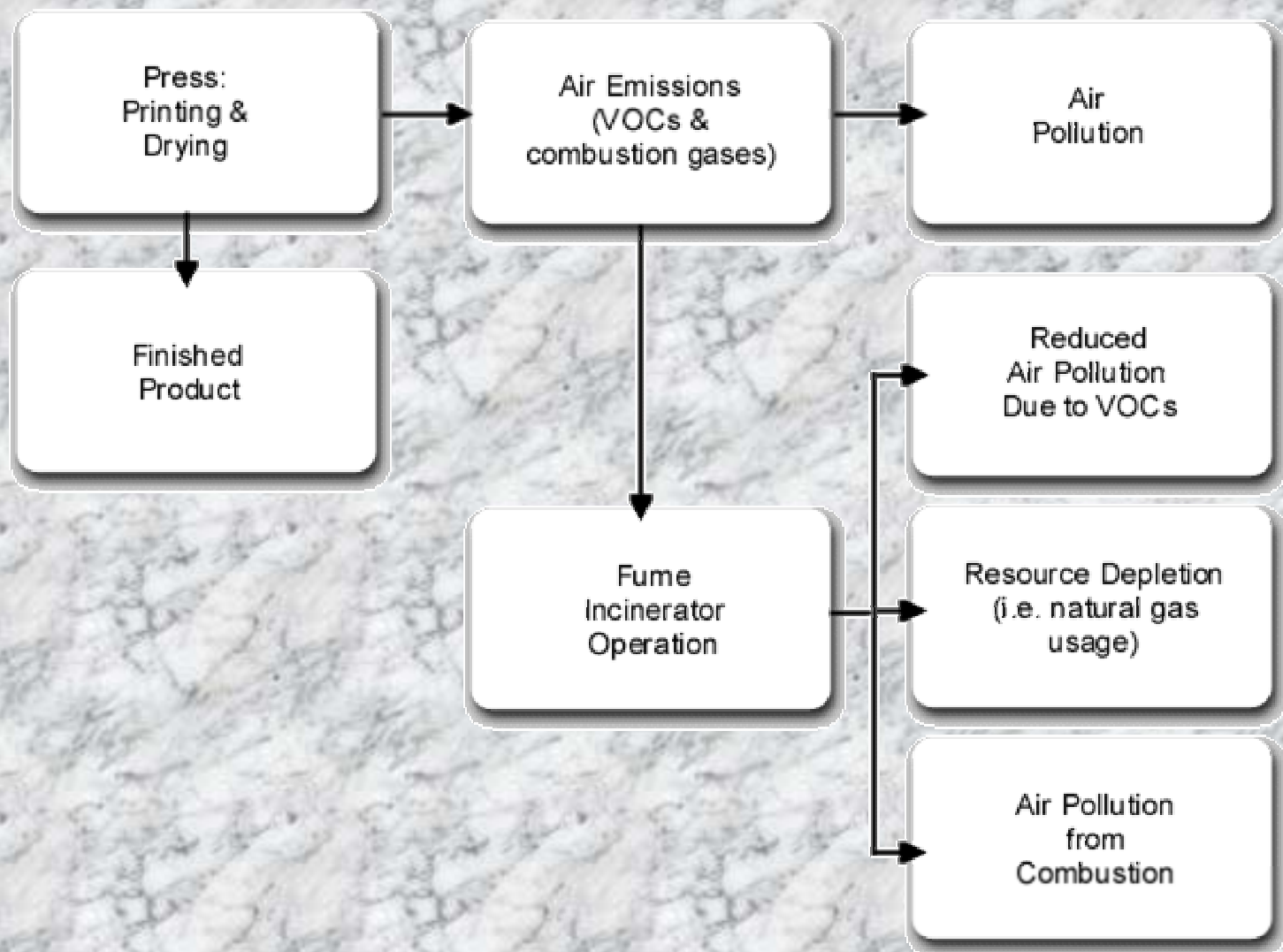
 - ✓ Anti-skin additive



Activity

Aspect

Impact



Press Clean-up

☐ Solvent

- ☐ Switch to an automatic wash-up if possible (Reduce solvent by 1/3)
- ☐ Switch to least toxic solvent as possible (may require new ink)
- ☐ Minimize use by applying on towel and not machine.
- ☐ Recover solvent by distillation, microwave treatment, etc.

☐ Towels

- ☐ Launder and reuse after recovery process.

☐ Excess Ink

- ☐ Readjust runs to reduce amount of excess ink.
- ☐ Filter and save for next color run
- ☐ Send to ink recycler for off-site treatment

Post-Press Processes



□ Post-Press

□ Adhesives

- ✓ Select low VOC glues

□ Solid waste

- ✓ Plan layout before printing to minimize waste
- ✓ Minimize overruns
- ✓ Recycle trimmings
- ✓ Recycle rejects



Resource Conservation

☐ Latest technologies:

- ☐ May require less energy, water, labor & chemicals
- ☐ May reduce set-up & make-ready times

☐ Monitor electric & water to determine:

- ☐ What activities consume them? Assign costs to those areas and activities.
- ☐ What measures might reduce usage?

☐ Monitor solid and hazardous waste

- ☐ Assign & track costs in areas that generate it.

Employee “Involvement”

- ❑ P2 roles & responsibilities for all employees
- ❑ Training & awareness programs
- ❑ Reward program for P2 suggestions & accomplishments



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www.kppc.org

The Next Steps:

Assess P2 Opportunities

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